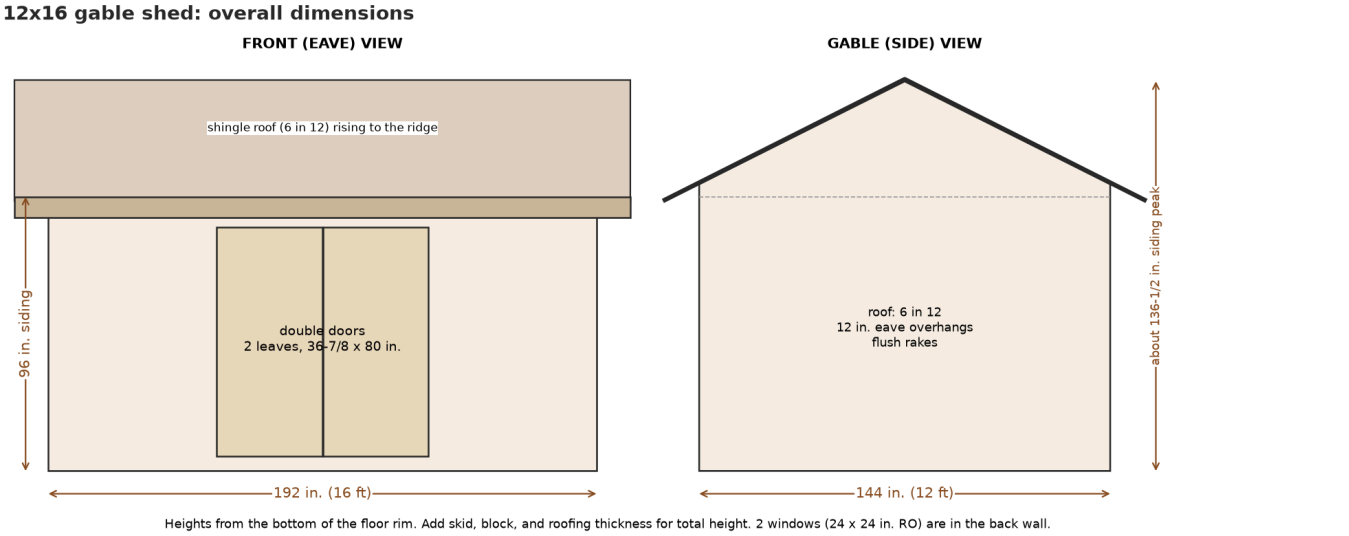
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12x16 Gable Shed: Printable Plan

Materials list, cut list, key steps, and diagrams. Free to print and use.

Not engineered or load-tested. No engineer has reviewed this plan, and we haven't load-tested a shed built from it. Member sizes come from 2024 IRC tables for up to 70 psf ground snow and wind below 140 mph Exposure B or 130 mph Exposure C, using No. 2 lumber. Permit rules, setbacks, height limits, snow and wind loads, and frost depth are set locally: check with your building department before you build, and resize the framing if your loads are higher. The skids are checked against the closest IRC table (deck beams), which doesn't cover the wall and roof loads on the outer skids, so have your building department confirm the block spacing.

At a glance: 144 x 192 in. (12 x 16 ft, 192 sq ft) outside of framing; 2x4 walls 89-3/4 in. tall (studs 85-1/4 in.); 6-in-12 gable roof, ridge along the 16-ft length; 2x6 rafters and ceiling joists at 16 in., 12 in. eave overhangs; 2x8 ridge; 1x4 collar ties 26 in. long, bottom edge 29 in. above the plates; 72 x 77-1/2 in. door opening (2-2x10 header, 2 king studs and 2 jacks each side); 2 windows 24 x 24 in.; floor of 2x6 joists at 16 in. on three 2-ply 2x8 skids on 18 solid blocks. All sizes are actual lumber sizes. Full instructions, the sizing table, and sources: shedandbench.com/12x16-shed-plans/



Overall dimensions

Sizing summary

Each member lists its design condition and source table, so you can check it against your local loads.

Design conditions used throughout

- Ground snow load: up to 70 psf (the highest column in the IRC rafter and header tables); roof live load 20 psf.
- Wind: ultimate design wind speed below 140 mph in Exposure B or below 130 mph in Exposure C. (the range for the king studs in IRC Table R602.7.5; uplift table R802.11 covers up to 140 mph).
- Lumber: No. 2 grade Douglas fir-larch, hem-fir, Southern pine, or spruce-pine-fir (check the grade stamp). Treated lumber for the skids and floor.
- Building width 12 ft; framing at 16 in. on center (gable walls 12 in.).

If your loads are higher, use the AWC Span Options Calculator or ask your building department.

Member	Size used	Design condition and table	Allowed	This shed
Rafters	2x6 No. 2 at 16 in.	IRC Table R802.4.1(7): 70 psf ground snow, 20 psf dead, ceiling not attached, L/180	7 ft 5 in. (SP) to 8 ft 1 in. (DF-L), horizontal	71-1/4 in. (5 ft 11-1/4 in.) wall to ridge
Rafter overhang	12 in.	IRC R802.7.1.1: notched cantilever	24 in. max., 3-1/2 in. depth left at the birdsmouth	12 in., about 3-15/16 in. left
Ridge board	2x8	IRC R802.3: 1 in. nominal min., at least as deep as the rafter's cut end	6-1/8 in. plumb cut needs more than a 2x6	7-1/4 in.
Ceiling joists (rafter ties)	2x6 No. 2 at 16 in.	IRC Table R802.5.1(2): attic with limited storage, 20 psf live, L/240	12 ft 0 in. (SP) to 13 ft 0 in. (DF-L)	137 in. (11 ft 5 in.) clear
Heel joints	5-16d common	IRC Table R802.5.2(1): 5:12 row, 16 in. spacing, 12-ft span column	3 / 3 / 4 / 5 nails at 20 / 30 / 50 / 70 psf	5 nails
Collar ties	1x4 at 16 in.	IRC R802.4.6: 1x4 min., 4 ft o.c. max., upper third of the attic space; Table R602.3(1) item 5	3-10d common each end	Bottom edge 29 in. above plates
Door header	2-2x10	IRC Table R602.7(1): roof and ceiling, 12-ft building width	9-0 / 7-8 / 6-9 at 30 / 50 / 70 psf; 1 jack at 30 psf, 2 jacks at 50 and 70 psf	6 ft 0 in. opening, 2 jacks each side
King studs at the door	2 each side	IRC Table R602.7.5: 6-ft row; 2 king studs below 140 mph Exposure B or 130 mph Exposure C	2	2 each side
Window headers	2-2x6	IRC Table R602.7(1), same column	6-0 / 5-1 / 4-6 at 30 / 50 / 70 psf, 1 jack	2 ft 0 in. openings, 1 king each side
Wall studs	2x4 at 16 in. (12 in. in gable walls)	IRC Table R602.3(5): bearing wall, roof and ceiling only	24 in. o.c., 10 ft height	85-1/4 in. studs
Floor joists	2x6 No. 2 at 16 in.	IRC Table R502.3.1(2): 40 psf live, 10 psf dead, L/360	9 ft 1 in. (HF) to 9 ft 9 in. (DF-L)	About 67-1/2 in. clear between skids
Skids	2-ply 2x8 treated	IRC Table R507.5(1) deck beams: 40 psf live, 10 psf dead, wet service; 16-ft joist column (see notes)	IRC 2021: 5-4 (SP), 4-8 (DF-L/HF/SPF); IRC 2024: 6-5 (SP), 6-0 (DF-L/HF/SPF)	Blocks about 36-3/4 in. apart
Rafter-to-wall ties	Simpson H2.5A	Uplift demand: IRC Table R802.11 (see "Wind and uplift"). Tie capacity: Simpson catalog p. 277 (manufacturer rating, not a code value)	615 lb (SPF/HF), manufacturer rating	201 lb max. at 130 mph, Exposure C (the plan's wind range); 247 lb at 140 mph C

Materials list

: how much lumber a 12x16 shed needs

Quantities include a spare rafter board. Buy extra 2x4s if you're new to framing.

Foundation and floor

- 6 – 2x8 x 16 ft treated, rated for ground contact (6 plies of 192 in. for three 2-ply skids)
- 18 – solid concrete blocks, at least 8 x 16 in. (three rows of 6; see “Site and foundation”)
- 18 – concrete pads or pavers, at least 16 x 16 in. (one under each block; required for this plan)
- Crushed gravel for a 14 x 18 ft pad (about 3.1 cubic yards at 4 in. deep) and landscape fabric
- 15 – 2x6 treated: 13 x 12 ft, 2 x 16 ft (2 rim joists of 192 in. and 13 floor joists of 141 in.)
- 7 – 23/32 in. APA Rated Sturd-I-Floor panels, span rating 24 oc, tongue-and-groove, 4 ft x 8 ft (6 needed, plus 1 spare)
- 4 (minimum) ground anchors with cable and clamps, sized for your soil by the anchor maker

Wall framing

- 66 – 2x4 x 8 ft (studs, jacks, sills, cripples, gable studs, ridge posts)
- 6 – 2x4 x 16 ft (front and back wall plates)
- 6 – 2x4 x 12 ft (gable-wall plates)
- 1 – 2x10 x 14 ft (door header, 2 plies)
- 1 – 2x6 x 10 ft (window headers, 4 plies of 27 in.)
- 1/2 in. plywood scraps for header spacers (from the roof sheathing offcuts)

Roof framing and roofing

- 27 – 2x6 No. 2 x 10 ft (26 rafters, plus a spare board)
- 11 – 2x6 No. 2 x 12 ft (ceiling joists)
- 1 – 2x8 No. 2 x 16 ft (ridge board)
- 4 – 1x4 x 8 ft (11 collar ties of 26 in.)
- 10 – 15/32 in. or 1/2 in. APA Rated Sheathing, span rating 32/16, 4 ft x 8 ft (8 needed, plus 2 spares)
- Roofing underlayment for about 250 sq ft plus laps
- Drip edge, 8 pieces x 10 ft (about 63 linear ft of eaves and rakes, plus laps)
- Architectural asphalt shingles, 9 bundles (GAF says 3 bundles of Timberline HDZ cover 98.4 sq ft; this roof is about 250 sq ft, plus cutting waste), plus starter strip shingles for about 63 linear ft and hip-and-ridge cap shingles for 16 ft of ridge, per the shingle maker
- Roofing nails: IRC R905.2.5 calls for galvanized steel, stainless steel, aluminum, or copper roofing nails with a 12-gauge minimum shank and 3/8 in. minimum head, long enough to go through the sheathing (it’s thinner than 3/4 in.)
- 26 – Simpson Strong-Tie H2.5A hurricane ties, plus 260 – 0.131 x 2-1/2 in. nails (or Simpson SD9212 screws)

Siding, trim, doors, and windows

- 18 – 4 ft x 8 ft panel siding sheets (this plan follows LP SmartSide Strand Substrate 76 Series panel instructions): 8 for the eave walls, 6 for the gable walls, 2 for the gable triangles, 2 for the door leaves
- 2 – 1x8 exterior trim x 16 ft (fascia)
- 4 – 1x6 exterior trim x 10 ft (rake boards)
- 16 – 1x4 exterior trim x 8 ft (8 corner boards, door rails and braces, astragal, window trim)
- Z-flashing, 5 pieces x 10 ft (gable joints, over the doors and windows)
- 2 – clear polycarbonate sheets, 1/4 in., cut 26 x 26 in. (fixed windows); or shed windows whose rough opening fits the framing
- 6 – heavy-duty exterior T-hinges or strap hinges, 2 barrel bolts for the fixed leaf, a hasp or gate latch, 2 door pulls
- 1/4 in. hardware cloth, small roll (for the open rafter bays above the walls)

Fasteners and finishing (nail sizes from IRC Table R602.3(1) unless noted; IRC R304.3.1 requires hot-dipped zinc-coated galvanized, stainless, silicon bronze, or copper fasteners in preservative-treated wood)

- 16d common nails (3-1/2 x 0.162 in.), hot-dip galvanized for treated lumber, for framing and heel joints

- 10d common nails (3 x 0.148 in.) for rafters, collar ties, and toenailing
- 10d nails (3 x 0.128 in.), hot-dip galvanized, for nailing the skid plies together (IRC R507.5)
- 8d common nails (2-1/2 x 0.131 in.) for the floor deck, roof sheathing, and ceiling joist toenails; hot-dip galvanized for toenailing joists to skids
- Siding nails: 6d (0.113 in. shank) hot-dipped galvanized, long enough to go at least 1-1/2 in. into framing (LP’s minimum for 38 and 76 Series panels; not electroplated)
- 1-5/8 in. exterior screws (trim, doors)
- Exterior sealant (LP calls for ASTM C920, Class 25 minimum), exterior primer and paint

Cut list

Part	Material	Qty	Length / size	Notes
Skid plies	2x8 treated (ground contact)	6	192 in.	Nail in pairs: 3 skids
Rim joists	2x6 treated	2	192 in.	Front and back
Floor joists	2x6 treated	13	141 in.	144 in. minus two 1-1/2 in. rims
Floor deck	23/32 in. T&G panel	7	Rows of 96 + 96 / 48 + 96 + 48 / 96 + 96 in. along the 192 in. length	Long edges across the joists; end joints on joists at the in.-marks shown
Front wall plates	2x4	3	192, 192, 185 in.	Bottom, top, upper top (stops 3-1/2 in. short of each end)
Front wall studs	2x4	12	85-1/4 in.	2 end, 6 common, 4 king
Door jack studs	2x4	4	76 in.	2 each side
Door header	2x10	2	78 in.	Plus 1/2 in. plywood spacer, 9-1/4 x 78 in.
Back wall plates	2x4	3	192, 192, 185 in.	As front
Back wall studs	2x4	13	85-1/4 in.	2 end, 7 common, 4 king
Window jack studs	2x4	4	79-3/4 in.	
Window headers	2x6	4	27 in.	Plus 1/2 in. plywood spacer, 5-1/2 x 27 in. (each)
Window sills	2x4	2	24 in.	Laid flat
Window cripples	2x4	4	54-1/4 in.	Under each sill, 4 in. in from each side of the opening
Gable wall plates	2x4	6	137, 137, 144 in. per wall	Upper top plate laps onto the eave walls
Gable wall studs	2x4	26	85-1/4 in.	13 per wall, 12 in. on center
Gable studs	2x4	20	Long points 4-5/8, 10-5/8, 16-5/8, 22-5/8, 28-5/8 in. (4 of each)	Top cut at 6 in 12; cut to fit under the end rafters
Ridge posts	2x4	2	32-3/4 in.	One per gable, centered
Rafters	2x6 x 10 ft	26 (+1 spare)	93-1/8 in.	Ridge plumb cut, birdsmouth, plumb tail; each needs about 95-13/16 in. of board (the parallel plumb cuts add 2-3/4 in.)
Ceiling joists	2x6 x 12 ft	11	144 in.	Clip top corners about 1-1/8 in. at each end to the roof line
Ridge board	2x8 x 16 ft	1	192 in.	
Collar ties	1x4	11	26 in.	Square-cut ends
Fascia	1x8	2	192 in.	Front and back rafter tails
Rake boards	1x6	4	Cut to fit (about 94 in.)	Over the end rafters

Corner boards	1x4	8	96 in.	Both faces of each corner
Door rails	1x4	4	33-7/8 in.	
Door braces	1x4	2	Cut to fit (diagonal)	Low end at each leaf’s hinge side
Astragal	1x4	1	80 in.	On the active leaf
Roof sheathing	1/2 in. rated sheathing	10 sheets	Per side: 48 in. course + about 45-3/4 in. rip; pieces 96 + 96 / 48 + 96 + 48 in. along the length	About 93-3/4 in. down each slope
Eave wall siding	Panel siding	8	48 x 96 in.	Notch the top edge about 1-5/8 x 2-1/8 in. at every rafter tail
Gable wall siding	Panel siding	6	3 x 48 x 96 in. per wall	Flush with the front and back corners
Gable triangles	Panel siding	2	Cut to fit, 48 in. wide pieces	Butt-and-flash joint at the top plate
Door leaves	Panel siding	2	36-7/8 x 80 in.	

How the rafter numbers work. The run from the outside of the wall to the face of the ridge board is 72 in. (half the building) minus 3/4 in. (half the ridge) = 71-1/4 in. Add the 12 in. overhang for 83-1/4 in. of horizontal run. At 6 in 12, each inch of run is 1.118 in. along the rafter, so the rafter is about 93-1/8 in. along each edge, with the heel line about 79-11/16 in. from the ridge long point.

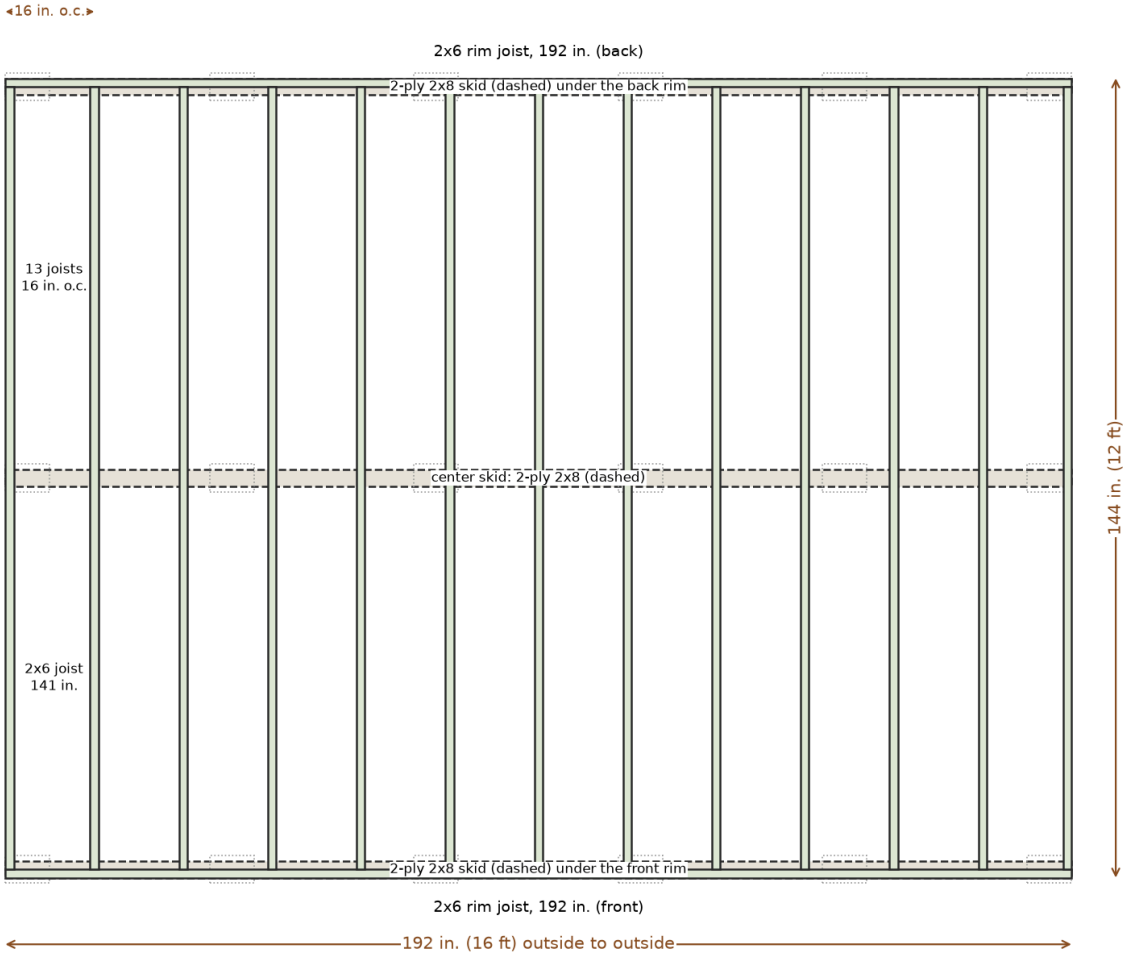
Key steps

1. **Skids and floor.** Nail each pair of 192 in. 2x8 plies with two rows of 10d nails 16 in. apart; set the three skids on the blocks (solid, at least 8 x 16 in., each on a 16 x 16 in. concrete pad or paver: required for this plan; check soil and footing rules with your building department; 70-1/2 in. apart center to center, blocks about 36-3/4 in. apart). Build the floor frame: 192 in. rims, 13 joists at 141 in., 16 in. on center, three 16d end nails per joint; square it (diagonals about 240 in.). Toenail each joist to each skid with three 8d nails, attach the ground anchors, and nail down the 23/32 in. T&G deck (8d at 6 in. edges / 12 in. field).
2. **Front wall.** Plates 192, 192, 185 in.; studs 85-1/4 in.; commons at 16, 32, 48, 144, 160, 176 in. Door opening 72 in. wide from 60 to 132 in., 2 king studs and 2 jack studs (76 in.) each side; 2-2x10 header 78 in. long with a 1/2 in. plywood spacer, tight under the top plate (opening 77-1/2 in. tall). No cripples above the header.
3. **Back wall.** Same plates; window rough openings 24 x 24 in. at 60 to 84, 108 to 132 in., bottom 57-1/4 in. above the deck; jacks 79-3/4 in.; 2-2x6 header 27 in.; flat 2x4 sill on two cripples (54-1/4 in.).
4. **Gable walls.** Plates 137, 137, 144 in. per wall; studs at 12 in. on center from the front corner; the 144 in. upper top plate laps onto the eave walls. Face-nail the corners (16d at 16 in.) and brace plumb and square.
5. **Rafters and ridge.** Pattern rafter: ridge plumb cut, heel line 79-11/16 in. from the ridge long point along the top edge, birdsmouth with a 3-1/2 in. seat and 1-3/4 in. plumb cut, tail 13-7/16 in. further on, plumb cut (93-1/8 in. overall). Test, then cut 26. Ridge posts 32-3/4 in. at the center of each gable; 192 in. 2x8 ridge. Set rafters in opposing pairs at 16 in. on center (3-10d toenails or 2-16d end nails at the ridge; 2-10d toenails at the plate (3 at the four end rafters)).
6. **Ties.** 11 ceiling joists (144 in. 2x6, ends clipped about 1-1/8 in. to the roof line) beside each interior pair, five 16d nails per heel joint; 1x4 collar ties 26 in. long, bottom edge 29 in. above the plates, three 10d each end; H2.5A hurricane tie at every rafter at both walls (26), on the inside face of the wall, on the side away from the ceiling joist (ESR-2613), clear of the siding notches; gable studs cut to fit (long points 4-5/8, 10-5/8, 16-5/8, 22-5/8, 28-5/8 in.).
7. **Roof.** 32/16 sheathing, full sheets at the eave, top course ripped to about 45-3/4 in.; 8d at 6 in. edges and field (4 in. at every rafter if your design wind is over 130 mph Exposure B or 110 mph Exposure C); 1x8 fascia; drip edge, underlayment, starter strips, shingles (9 bundles), ridge cap.
8. **Siding and trim.** Notch the top edge of each eave-wall panel about 1-5/8 x 2-1/8 in. at every rafter tail (the tails hang about 2-1/16 in. below the wall top at the siding face). Hang the panels from the bottom of the rim to the top of the wall, cut out the door and window openings, flash and hang the gable triangles, add corner and rake trim, and close the eaves with hardware cloth.
9. **Doors and windows.** Two 36-7/8 x 80 in. leaves with 1x4 rails (33-7/8 in.) and a diagonal brace, three hinges each, an astragal on the active leaf; polycarbonate windows set in sealant with 1x4 trim and Z-flashing above.

Wear eye and hearing protection. Get help to raise walls and set the ridge. Use fasteners rated for treated lumber. Call 811 before you dig or drive ground anchors.

Diagrams

12x16 floor frame on three skids (top view)

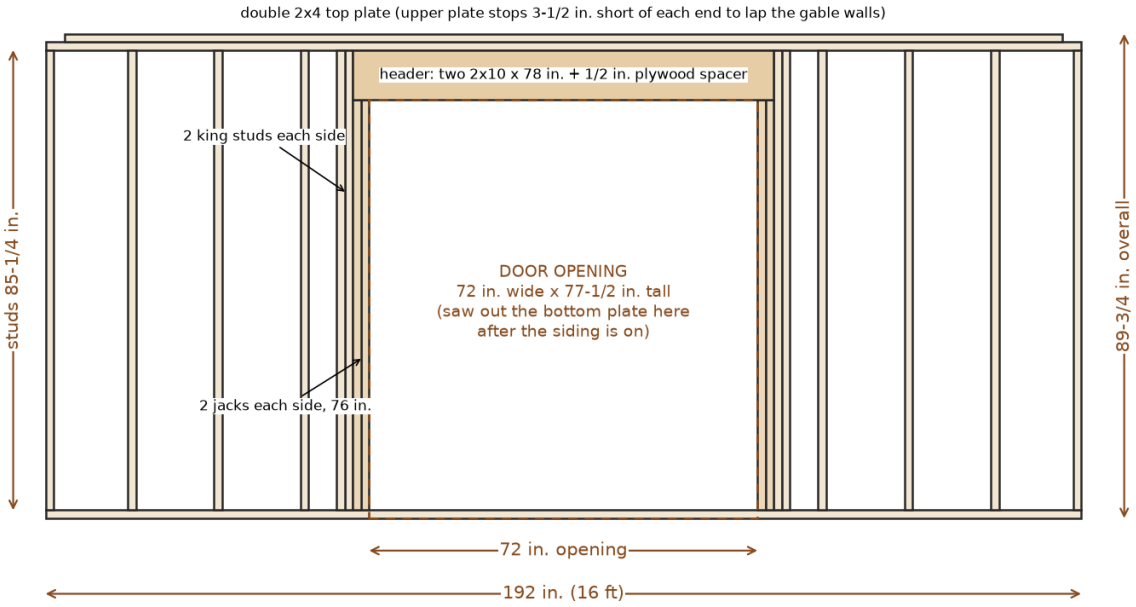


Dotted boxes: solid concrete blocks, 6 under each skid, about 36-3/4 in. apart center to center, first and last 4 in. in from the ends.

Joists: flush at each end, then centered at 16, 32, 48 ... 176 in. Deck: 23/32 in. tongue-and-groove panels, long edges across the joists.

Floor frame and blocks

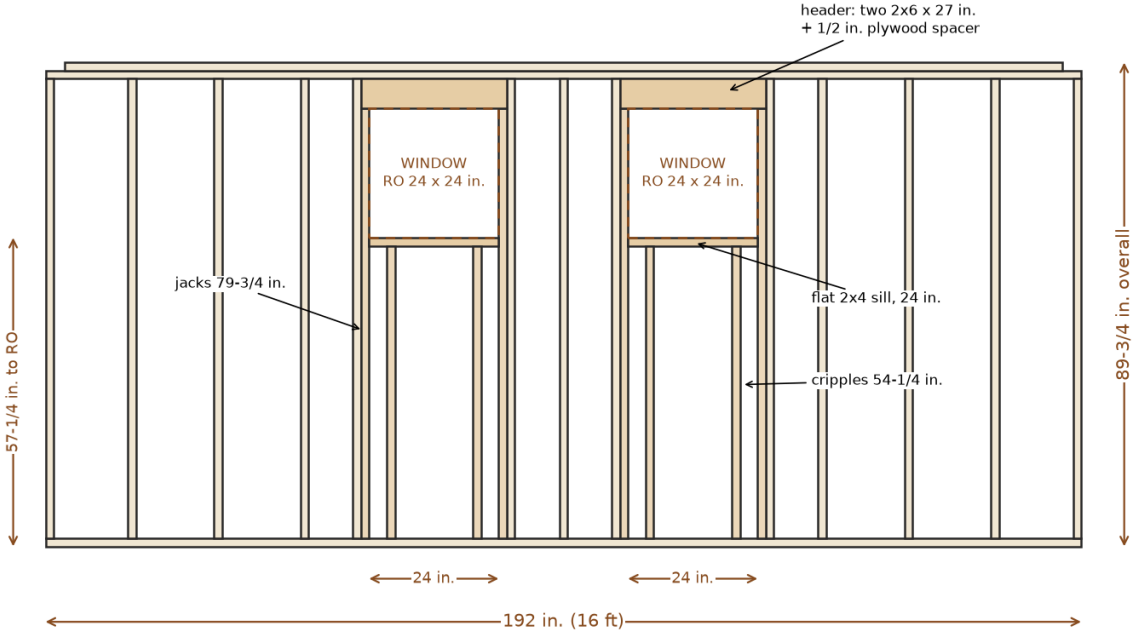
Front (eave) wall with 72 in. double-door opening



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Front wall framing

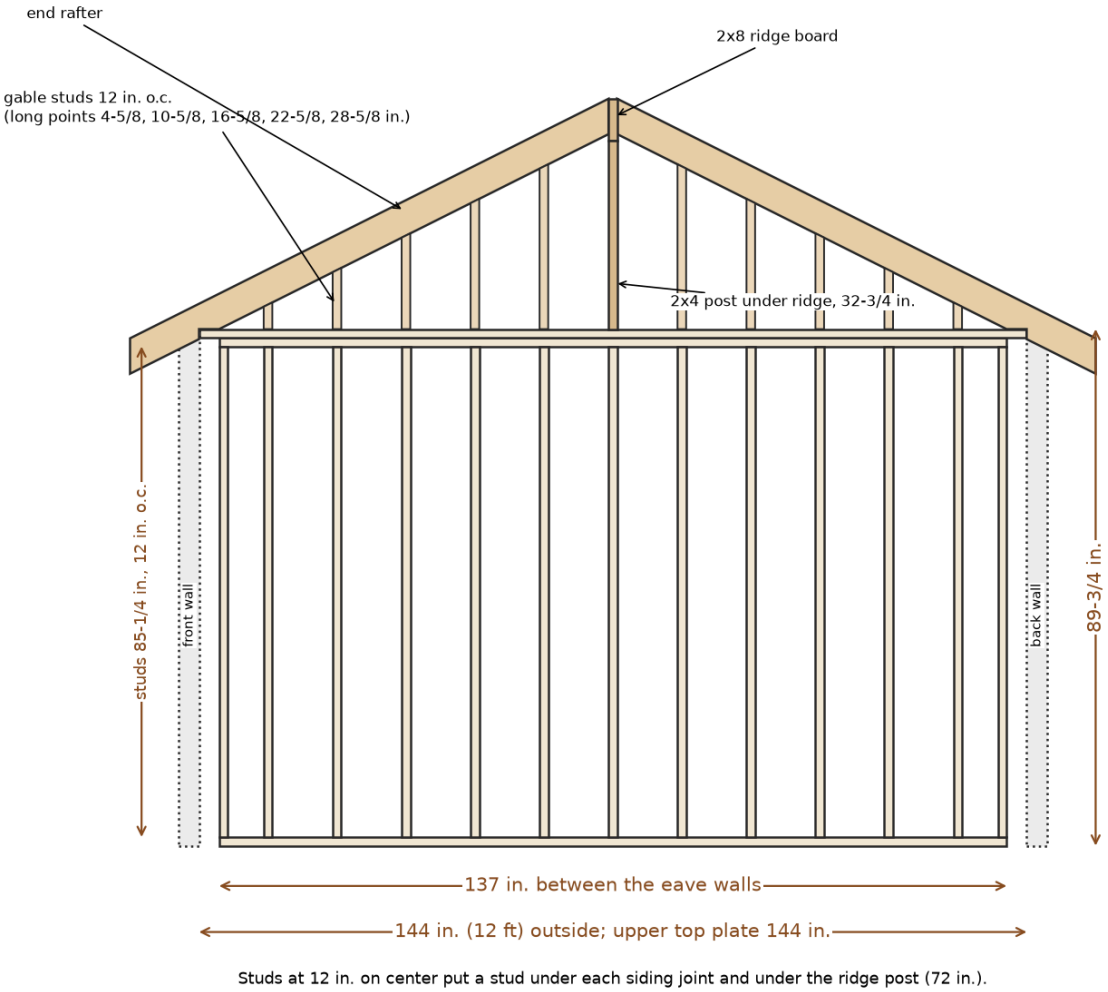
Back (eave) wall with window openings



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Back wall framing

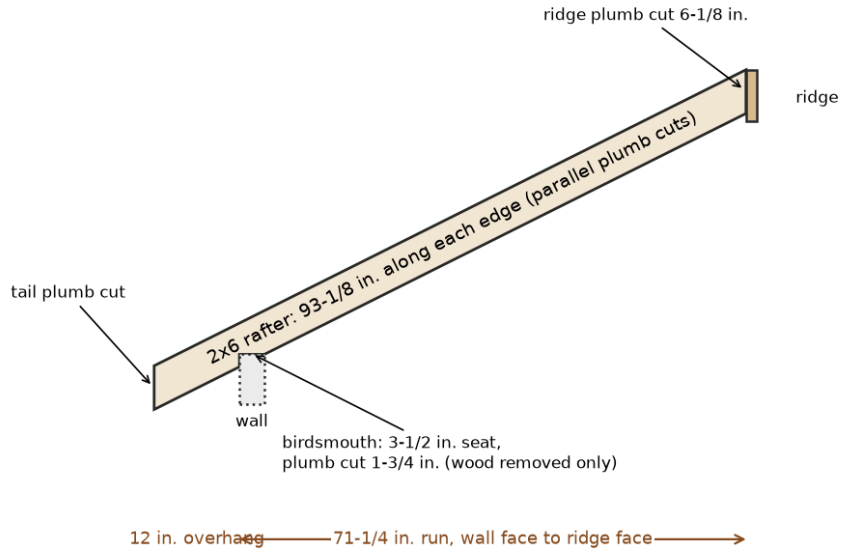
Gable (side) wall and gable-end framing



Studs at 12 in. on center put a stud under each siding joint and under the ridge post (72 in.).

Gable wall and gable-end framing

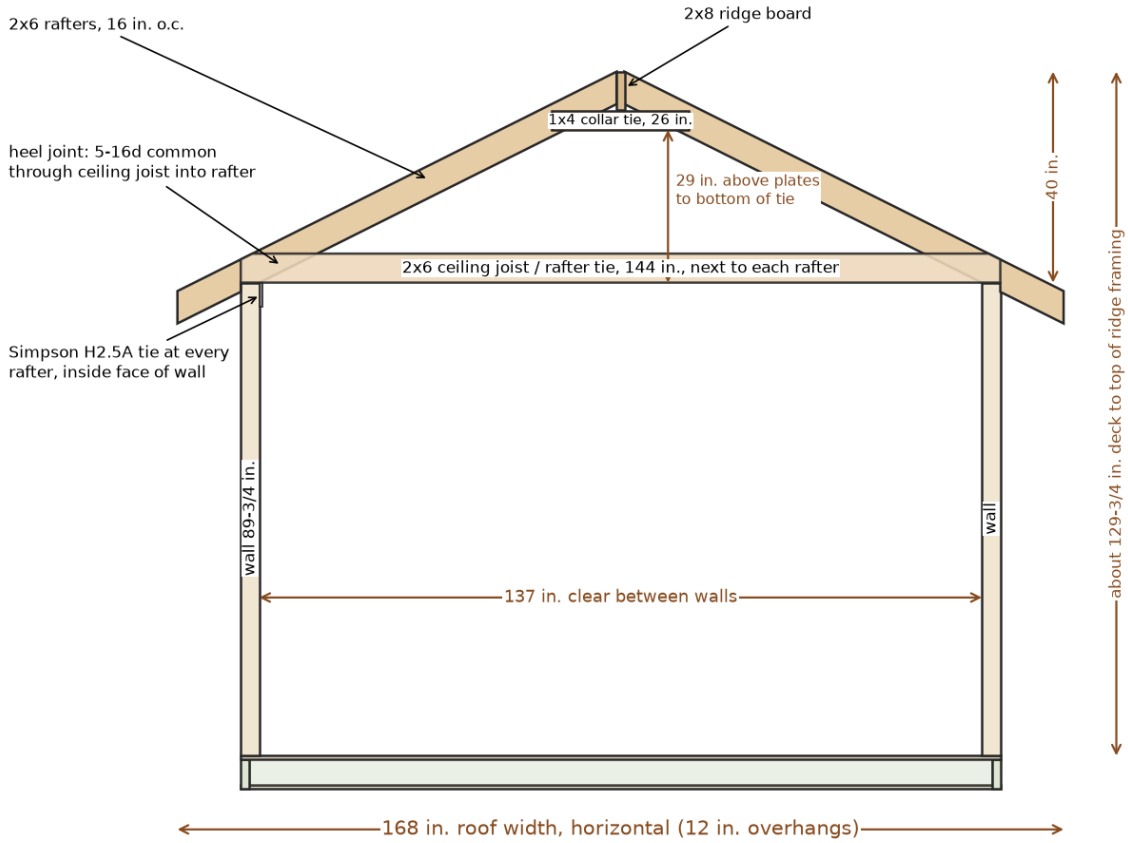
Rafter pattern (cut one, test it, then copy it)



Along the top edge: 79-11/16 in. from the ridge long point to the heel line; 13-7/16 in. tail. Slope 6 in 12.
The rafter's bottom edge passes through the inner corner of the wall plate, so the tail hangs 1-3/4 in. below the top of the wall at its outside face.

Rafter pattern

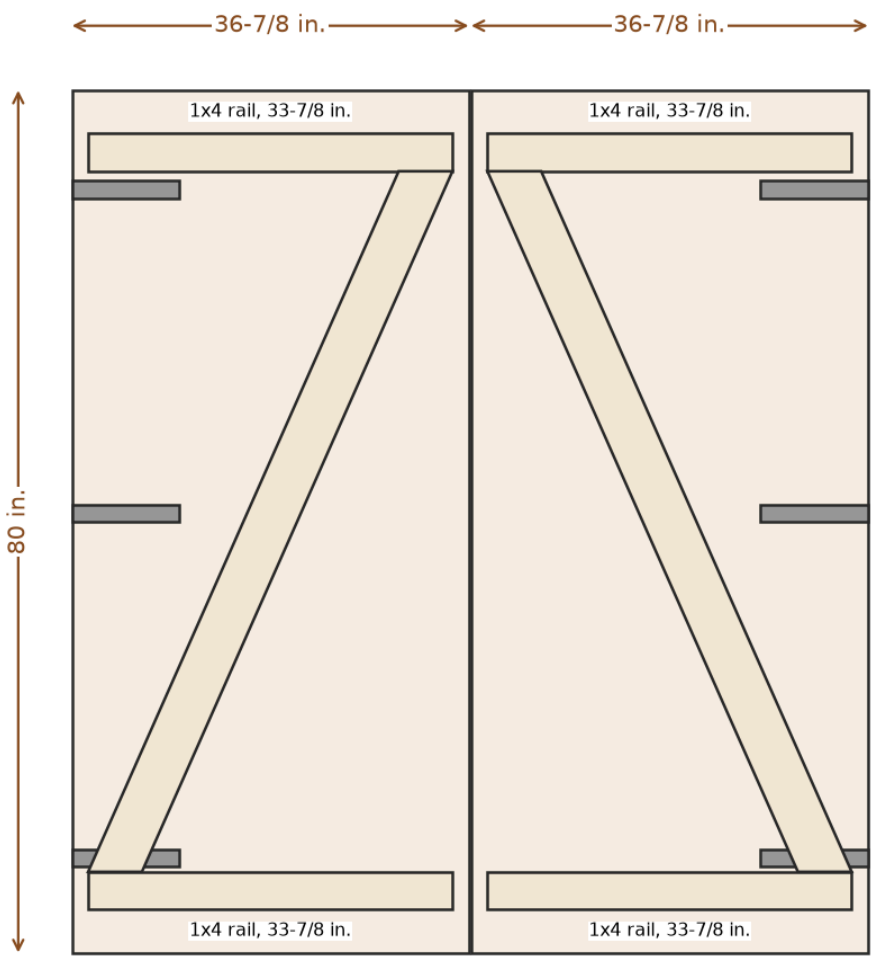
Section through the roof: what holds the walls together



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Roof section

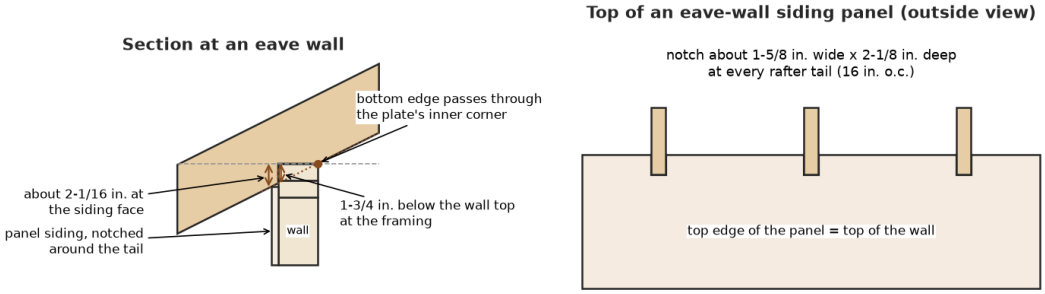
Double doors, Z-frame (inside face)



1/4 in. gap; 1x4 astragal on the outside of the active leaf covers it

Inside face. Hinges (gray) on the outer edges; each brace's low end is on its hinge side.

Eave detail: notch the siding around each rafter tail



Eave detail: siding notch at each rafter tail